ARCADIS Design & Consultancy for natural and built assets

Arcadis U.S., Inc.
35 Columbia Road
Branchburg
New Jersey 08876
Tel 908.526.1000
Fax 908.526.7886
www.arcadis-us.com

West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

FEDERAL EXPRESS

Subject:
Permit Determination Form
Fresenius Medical Care – NA Site # 3836 Charles Town, WV
179 East Burr Blvd.
Kearneysville, West Virginia

Date:
April 6, 2017

To whom it may concern:

On behalf of Fresenius Medical Care – North America (FMC-NA), Arcadis U.S., Inc. (Arcadis) is hereby submitting a permit determination form for a stand-by generator that will be installed at the Kearneysville, West Virginia site. The potential to discharge PM, PM_{10}, $PM_{2.5}$, SO_2, NO_x, VOC, and CO from the stand-by generator is less than 6 pounds per hour, per pollutant. In addition, the calculations show that the potential to discharge aggregate HAPs from the stand-by generator is less than 2 pounds per hour and less than 5 tons per year. These permitting thresholds were confirmed in a February 21, 2017 email correspondence from Ms. Beverly McKeone, the NSR Program Manager for the WVDEP. Ms. McKeone stated that an emergency generator that is certified to meet Federal New Source Performance Standards is not subject to substantive requirements and is not subject to air permitting requirements if the emissions are below the thresholds listed above.

Email:
bridget.antczak@arcadis.com

Our ref:
BB020161.0000.00001

FMC-NA intends to install this stand-by generator at its outpatient dialysis facility located on East Burr Boulevard, Charles Town, West Virginia. The billing contact information is Mr. Mark Fick, FMC-NA, 900 Circle 75 Parkway, Suite 1080, Atlanta, GA 30339.

The generator will be a Kohler Model 300REOZJ, which is described as a 300 kW diesel generator. The engine is described as a 4635 brake-horsepower (bhp), 346 KW engine when operating at 1,800 rpm in stand-by rating. The proposed 2015 model year engine satisfies EPA Tier 3 emission requirements for off-road engines. The engine is scheduled to be installed by April 17, 2017.

The outpatient dialysis facility provides kidney dialysis services. This generator will be used only for the purpose of providing stand-by electrical power to avoid an interruption in the dialysis treatment. As this is a stand-by generator, it will regularly operate only for maintenance and testing purposes. The engine is expected to run not more than 52 hours per year (one hour per week) for maintenance and testing

purposes. The generator is equipped with a totalizing hour meter on the engine, to record actual hours of usage.

If there are any questions or comments about the enclosed general permit registration package, please do not hesitate to contact me at 908.685.7841.

Sincerely,

Arcadis U.S., Inc.

Bridget H. Antczak
Certified Project Manager

BHA/ymt

WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
601 57th Street, SE
Charleston, WV 25304
Phone: (304) 926-0475
www.dep.wv.gov/daq

PERMIT DETERMINATION FORM (PDF)

FOR AGENCY USE ONLY: PLANT I.D. # _____

PDF # _____ PERMIT WRITER: _____

1. NAME OF APPLICANT (AS REGISTERED WITH THE WV SECRETARY OF STATE'S OFFICE):
Bio-Medical Applications of West Virginia, Inc.d/b/a Fresenius Medical Care of Charles Town

2. NAME OF FACILITY (IF DIFFERENT FROM ABOVE):
FMC Clinic # 3836 – Charles Town

3. NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS) CODE:
6 21 49 2 __

4A. MAILING ADDRESS: Attn: Mark Fick, FMC-Na, 900 Circle 75 Pkwy., Atlanta, GA. 30339

4B. PHYSICAL ADDRESS: 179 East Burr Blvd., Kearneysville, WV 25430

5A. DIRECTIONS TO FACILITY (PLEASE PROVIDE **MAP AS ATTACHMENT A**): Take WV-9 to County Route 8, toward Bardone. Turn left onto WV-115/Wiltshire Rd. Turn Right onto Charlestown Rd., Turn left onto East Burr Blvd.

5B. NEAREST ROAD: East Burr Blvd.

5C. NEAREST CITY OR TOWN: Kearneysville

5D. COUNTY: Jefferson

5E. UTM NORTHING (KM): 4361472.36

5F. UTM EASTING (KM): 770647.24

5G. UTM ZONE: 17

6A. INDIVIDUAL TO CONTACT IF MORE INFORMATION IS REQUIRED: Ms. Bridget Antczak – Arcadis US, Inc. (consultant)

6B. TITLE: Certified Project Manager

6C. TELEPHONE: (908) 685-7841

6D. FAX:

6E. E-MAIL: Bridget.antczak@arcadis.com

7A. DAQ PLANT I.D. NO. (FOR AN EXISTING FACILITY ONLY): _N/A_ ___ ___ - ___ ___ ___ ___ ___

7B. PLEASE LIST ALL CURRENT 45CSR13, 45CSR14, 45CSR19 AND/OR TITLE V (45CSR30) PERMIT NUMBERS ASSOCIATED WITH **THIS** PROCESS (FOR AN EXISTING FACILITY ONLY): N/A

7C. IS THIS PDF BEING SUBMITTED AS THE RESULT OF AN ENFORCEMENT ACTION? IF YES, PLEASE LIST: N/A

8A. TYPE OF EMISSION SOURCE (CHECK ONE):
☒ **NEW SOURCE** ☐ **ADMINISTRATIVE UPDATE**
☐ **MODIFICATION** ☐ **OTHER** (PLEASE EXPLAIN IN 11B)

8B. IF ADMINISTRATIVE UPDATE, DOES DAQ HAVE THE APPLICANT'S CONSENT TO UPDATE THE EXISTING PERMIT WITH THE INFORMATION CONTAINED HEREIN?
☐ **YES** ☐ **NO**

9. IS *DEMOLITION* OR PHYSICAL *RENOVATION* AT AN EXISTING FACILITY INVOLVED? ☐ **YES** ☒ **NO**

10A. DATE OF ANTICIPATED INSTALLATION OR CHANGE: 4/ 17 /2017 .

10B. DATE OF ANTICIPATED START-UP: 4/ 17 /2017 .

11A. PLEASE PROVIDE A **DETAILED PROCESS FLOW DIAGRAM** SHOWING EACH PROPOSED OR MODIFIED PROCESS EMISSION POINT AS **ATTACHMENT B.**

11B. PLEASE PROVIDE A **DETAILED PROCESS DESCRIPTION** AS **ATTACHMENT C.**

12. PLEASE PROVIDE **MATERIAL SAFETY DATA SHEETS (MSDS)** FOR ALL MATERIALS PROCESSED, USED OR PRODUCED AS **ATTACHMENT D.** FOR CHEMICAL PROCESSE, PLEASE PROVIDE A MSDS FOR EACH COMPOUND EMITTED TO AIR.

13A. **REGULATED AIR POLLUTANT EMISSIONS:**

⇒ **FOR A NEW FACILITY,** PLEASE PROVIDE PLANT WIDE EMISSIONS BASED ON THE POTENTIAL TO EMIT (PTE) FOR THE FOLLOWING AIR POLLUTANTS INCLUDING ALL PROCESSES.

⇒ **FOR AN EXISTING FACILITY,** PLEASE PROVIDE THE PROPOSED CHANGE IN EMISSIONS BASED ON THE PTE OF ALL PROCESS CHANGES FOR THE FOLLOWING AIR POLLUTANTS.

PTE FOR A GIVEN POLLUTANT IS TYPICALLY BEFORE AIR POLLUTION CONTROL DEVICES AND IS COLLECTED BASED ON THE MAXIMUM DESIGN CAPACITY OF PROCESS EQUIPMENT.

POLLUTANT	HOURLY PTE (LB/HR)	YEARLY PTE (TON/YR) (HOURLY PTE MULTIPLIED BY 8760 HR/YR) DIVIDED BY 2000 LB/TON
PM	0.152	0.038 (based on 500 hours/yr)
PM_{10}	0.152	0.038 (based on 500 hours/yr)
VOCs	3.048	0.762 (based on 500 hours/yr)
CO	2.667	0.667 (based on 500 hours/yr)
NO_x	3.048	0.762 (based on 500 hours/yr)
SO_2	0.949	0.237(based on 500 hours/yr)
Pb		
HAPs (AGGREGATE AMOUNT)	0.0115	
TAPs (INDIVIDUALLY)*	see attached for	Benzene, 1,3-Butadiene, Formaldehyde
OTHER (INDIVIDUALLY)*		

* ATTACH ADDITIONAL PAGES AS NEEDED

13B. PLEASE PROVIDE ALL **SUPPORTING CALCULATIONS** AS **ATTACHMENT E.**

CALCULATE AN HOURLY AND YEARLY PTE OF EACH PROCESS EMISSION POINT (SHOWN IN YOUR DETAILED PROCESS FLOW DIAGRAM) FOR ALL AIR POLLUTANTS LISTED ABOVE INCLUDING INDIVIDUAL HAP'S (LISTED IN SECTION 112[b] OF THE 1990 CAAA), TAP'S (LISTED IN 45CSR27), AND OTHER AIR POLLUTANTS (E.G. POLLUTANTS LISTED IN TABLE 45-13A OF 45CSR13, MINERAL ACIDS PER 45CSR7, ETC.).

14. **CERTIFICATION OF DATA**

I, MARK FICK (*TYPE NAME*) ATTEST THAT ALL THE REPRESENTATIONS CONTAINED IN THIS APPLICATION, OR APPENDED HERETO, ARE TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE BASED ON INFORMATION AND BELIEF AFTER REASONABLE INQUIRY, AND THAT I AM A ***RESPONSIBLE OFFICIAL**** (*PRESIDENT, VICE PRESIDENT, SECRETARY OR TREASURER, GENERAL PARTNER OR SOLE PROPRIETOR*) OF THE APPLICANT.

SIGNATURE OF RESPONSIBLE OFFICIAL: _____

TITLE: MEP ENGINEER DATE: 04 / 03 / 2017

** THE DEFINITION OF THE PHRASE '*RESPONSIBLE OFFICIAL*' CAN BE FOUND AT 45CSR13, SECTION 2.23.

NOTE: PLEASE CHECK ENCLOSED ATTACHMENTS:

☒ **ATTACHMENT A** ☒ **ATTACHMENT B** ☒ **ATTACHMENT C** ☒ **ATTACHMENT D** ☒ **ATTACHMENT E**

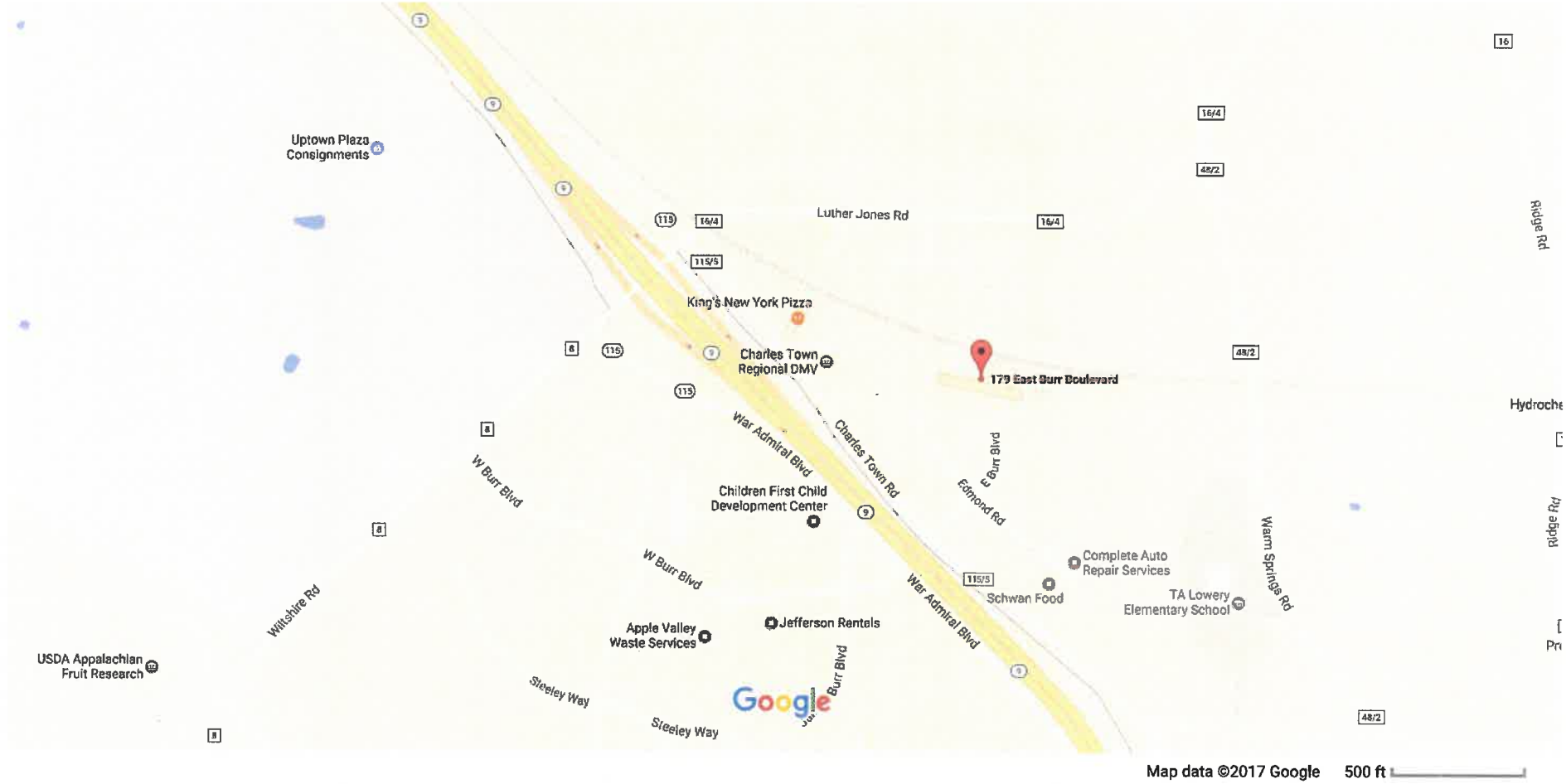
RECORDS ON ALL CHANGES ARE REQUIRED TO BE KEPT AND MAINTAINED ON-SITE FOR TWO (2) YEARS.

THE PERMIT DETERMINATION FORM WITH THE INSTRUCTIONS CAN BE FOUND ON DAQ'S PERMITTING SECTION WEB SITE:

www.dep.wv.gov/daq

Attachment A: Area Map

Google Maps 179 E Burr Blvd

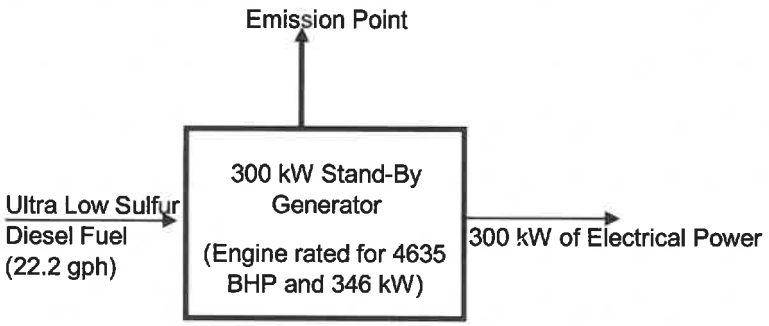


Attachment B: Process Flow Diagram

Prepared by: BHA.
ARCADIS BN024403.0000
3/20/2017

Bio-Medical Applications of West Virginia, Inc. d/b/a/ Fresenius Medical Care of Charles Town - 179 East Burr Blvd., Kearneysville, WV 25430 (Site #3836)

Kohler 300REOZJ Diesel-Fired Stand-by Generator; John Deere 6090HFG86 Engine



Attachment C: Process Description

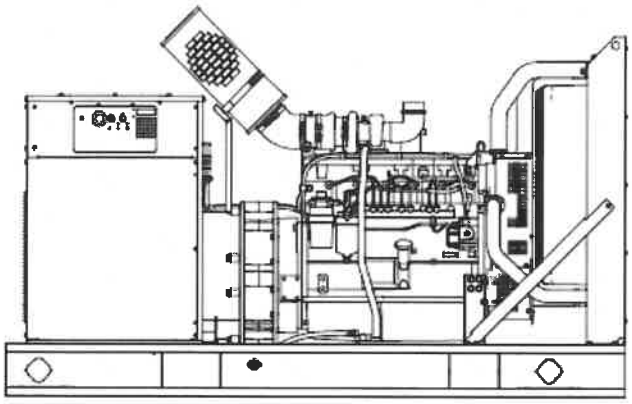
(includes Manufacturer Specification Sheets)

Fresenius Medical Care North America (FMC-NA) installed this stand-by generator at its outpatient dialysis facility located at 179 East Burr Blvd., Kearneysville, WV 25430 (Charles Town Dialysis Center). The billing contact information is Mr. Mark Fick, FMC-NA, 900 Circle 75 Parkway, Suite 1080, Atlanta, GA 30339.

The generator is a Kohler Model 300REOZJ, which is described as a 300 KW diesel generator. The engine is a John Deere Model 6090HFG86, which is described as a 463 bhp, 346 KW engine when operating at 1,800 rpm in stand-by rating. The 2015 model year engine satisfies EPA Tier 3 emission requirements for off-road engines. The engine is scheduled to be installed on April 17, 2017.

This outpatient dialysis facility provides kidney dialysis services. This generator is used only for the purpose of providing stand-by electrical power to avoid an interruption in the dialysis treatment. As this is a stand-by generator, it will regularly operate only for maintenance and testing purposes. The engine is expected to run not more than 52 hours per year (one hour per week) for maintenance and testing purposes. The generator is equipped with a totalizing hour meter on the engine, to record actual hours of usage. In addition, usage records are maintained at the facility. Since the engine was manufactured after April 1, 2006, it is applicable to 40 CFR 60 Subpart IIII (New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines). The engine complies with the standard by using diesel fuel with a sulfur content less than 15 ppm and maintaining a log of all usages. Since this is a stand-by generator, potential emissions are based upon 500 hours per year of operation, not (8,760 hours per year)

ISO 9001
KOHLER POWER SYSTEMS
NATIONALLY REGISTERED



Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- A one-year limited warranty covers all systems and components. Two- and five-year extended warranties are also available.
- Tier 3 EPA-certified for Stationary Emergency Applications

Alternator Features

- The unique Fast-Response II excitation system delivers excellent voltage response and short circuit capability using a permanent magnet (PM)-excited alternator.
- The brushless, rotating-field alternator has broad range reconnectability.

Other Features

- Controllers are available for all applications. See controller features inside.
- The low coolant level shutdown prevents overheating (standard on radiator models only).Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
- An electronic, isochronous governor delivers precise frequency regulation.
- Multiple circuit breaker configurations.

Generator Set Ratings

				Standby130C Ratings	
Alternator	Voltage	Ph	Hz	kW/kVA	Amps
4UA13	120/208	3	60	300 / 375	1041

RATINGS: All three-phase units are rated at 0.8 power factor.
Standby Ratings: Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage.
There is no overload capability for this rating. Ratings are in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271.
Prime Power Ratings: Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited.
A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528/1, overload power in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. For limited running time and base load ratings, consult the factory.
Obtain the technical information bulletin (TIB-101) on ratings guidelines for the complete ratings definitions.
The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.
GENERAL GUIDELINES FOR DERATION: Altitude: Derate 1.3% per 100 m (328 ft.) elevation above 762 m (2500 ft.). Temperature: Derate 1.0% per 10?C (18?F) temperature above 25?C (77?F).

Model: 300REOZJ, continued

Alternator Specifications

Specifications	Alternator
Alternator manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless,Permanent-Magnet
Leads, quantity	12, Reconnectable
Voltage regulator	Solid State, Volts/Hz
Insulation	NEMA MG1
Insulation: Material	Class H
Insulation: Temperature Rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load (with <0.5% drift due to temp. variation)	Controller Dependent
One-Step Load Acceptance	100% of rating
Unbalanced load capability	100% of Rated Standby Current

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling down stream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Vacuum-impregnated windings with fungus-resistant epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.
- Fast-Response™ II brushless alternator with brushless exciter for excellent load response.

Exhaust

Exhaust System

Exhaust Manifold Type	Dry
Exhaust flow at rated kW, m3/min. (cfm)	63.6 (2246)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	497 (927)
Maximum allowable back pressure, kPa (in. Hg)	Min. 0 (0) Max. 7.5 (2.2)
Exh. outlet size at eng. hookup, mm (in.)	98 (3.86)

Engine Electrical

Engine Electrical System

Battery charging alternator: Ground (negative/positive)	Negative
Battery charging alternator: Volts (DC)	24
Battery charging alternator: Ampere rating	45
Starter motor rated voltage (DC)	24
Battery, recommended cold cranking amps (CCA): Qty., CCA rating each	Two, 950
Battery voltage (DC)	12

Model: 300REOZJ, continued

Fuel

Fuel System

Fuel type	Diesel
Fuel supply line, min. ID, mm (in.)	11.0 (0.44)
Fuel return line, min. ID, mm (in.)	6.0 (0.25)
Max. lift, fuel pump: type, m (ft.)	Electronic, 3 (10)
Max. fuel flow, Lph (gph)	240 (63.4)
Fuel prime pump	Electronic
Fuel Filter Secondary	2 Microns@ 98% Efficiency
Fuel Filter Primary	10 Microns
Fuel Filter Water Separator	Yes
Recommended fuel	#2 Diesel

Lubrication

Lubrication System

Type	Full Pressure
Oil pan capacity, L (qt.)	32.5 (34.4)
Oil pan capacity with filter, L (qt.)	33.4 (35.3)
Oil filter: quantity, type	1, Cartridge
Oil cooler	Water-Cooled

Cooling

Radiator System

Ambient temperature, °C (°F)	50 (122)
Engine jacket water capacity, L (gal.)	16 (4.25)
Radiator system capacity, including engine, L (gal.)	36 (9.5)
Engine jacket water flow, Lpm (gpm)	265 (70)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	114 (6489)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	99.1 (5641)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	863.6 (34.0)
Fan, kWm (HP)	9 (12.1)
Max. restriction of cooling air, intake and discharge side of radiator, kPA (in. H20)	0.125 (0.5)

* Enclosure with internal silencer reduces ambient temperature capability by 5°C (9°F).

Operation Requirements

Air Requirements

Radiator-cooled cooling air, m3/min. (scfm) *	396.4 (14000)
Combustion air, m3/min. (cfm)	26.5 (936)
Heat rejected to ambient air: Engine, kW (Btu/min.)	60.8 (3460)
Heat rejected to ambient air: Alternator, kW (Btu/min.)	23.9 (1360)
Radiator-cooled cooling air, m3/min. (scfm) *	396.4 (14000)
Combustion air, m3/min. (cfm)	26.5 (936)
Heat rejected to ambient air: Engine, kW (Btu/min.)	60.8 (3460)
Heat rejected to ambient air: Alternator, kW (Btu/min.)	23.9 (1360)

*Air density = 1.20 kg/m3 (0.075 lbm/ft3)

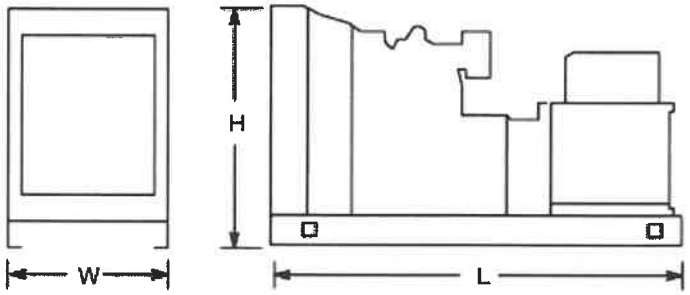
Fuel Consumption

Model: 300REOZJ, continued

Diesel, Lph (gph), at % load	Rating
Standby Fuel Consumption at 100% load	84.1 Lph (22.2 gph)
Standby Fuel Consumption at 75% load	67.7 Lph (17.9 gph)
Standby Fuel Consumption at 50% load	49.7 Lph (13.1 gph)
Standby Fuel Consumption at 25% load	26.3 Lph (7.0 gph)

Dimensions and Weights

Dim Weight Spec	Dim Weight Value
Fuel	Diesel
Engine Manufacturer	John Deere
Overall Size, L x W x H, mm (in.): Wide Skid	3100 x 1300 x 1689 (118.1 x 51.2 x 66.5)
Overall Size, L x W x H, mm (in.): Narrow Skid	2800 x 864 x 1380 (110.2 x 34.0 x 54.3)
Weight (radiator model), wet, kg (lb.):	2449 (5400)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

KOHLER
Power Systems

300REOZJ

60 HZ. DIESEL INDUSTRIAL GENERATOR SET
EMISSION DATA SHEET

ENGINE INFORMATION

Model:	John Deere, 6090HFG86A	Bore:	118.4mm (4.66 in.)
Nameplate BHP @ 1800 RPM:	463	Stroke:	136mm (5.35 in.)
Type:	4-Cycle, 6 Cylinder, Inline	Displacement:	9.0 L (548 cu. in.)
Aspiration:	Turbocharged, Charge Air-Cooled		
Compression Ratio	16.0:1	EPA Family:	FJDXL09.0114
		EPA Certificate:	FJDXL09.0114-007

PERFORMANCE DATA:

Table 1

	1/4 Standby	1/2 Standby	3/4 Standby	Full Standby
Engine bkW @ Stated Load	86.50	173.00	259.50	346.00
Fuel Consumption (g/kWh)	247.00	240.00	215.00	205.00
Exhaust Gas Flow (m^3/min)				63.60
Exhaust Temperature (°C)				497.00

EXHAUST EMISSION DATA:

Table 2

	EPA CERTIFICATE DATA
HC (Total Unburned Hydrocarbons)	0.05
NOx (Oxides of Nitrogen as NO2)	3.8
CO (Carbon Monoxide)	0.9
PM (Particular Matter)	0.11

Values are in g/kWh unless otherwise noted

TEST METHODS AND CONDITIONS

The EPA Certificate Data in Table 2 is a weighted average value per ISO 8528 D2.

Data and specifications subject to change without notice
For further information, please contact Todd Loes at John Deere Power Systems, 319-292-6050

	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY **2015 MODEL YEAR** **CERTIFICATE OF CONFORMITY** **WITH THE CLEAN AIR ACT**	**OFFICE OF TRANSPORTATION AND AIR QUALITY** **ANN ARBOR, MICHIGAN 48105**

Certificate Issued To: Deere & Company (U.S. Manufacturer or Importer) **Certificate Number: FJDXL09.0114-007**	**Effective Date:** **11/13/2014** **Expiration Date:** **12/31/2015**	**Byron J. Bunker, Division Director** **Compliance Division**	**Issue Date:** **11/13/2014** **Revision Date:** **N/A**

Model Year: 2015 **Manufacturer Type:** Original Engine Manufacturer **Engine Family:** FJDXL09.0114	**Mobile/Stationary Indicator:** Stationary **Emissions Power Category:** 225<=kW<450 **Fuel Type:** Diesel **After Treatment Devices:** No After Treatment Devices Installed **Non-after Treatment Devices:** Non-standard Non-After Treatment Device Installed, Smoke Puff Limiter, Electronic Control, Engine Design Modification

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Part 60, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

Attachment D: SDS

Attachment D - Sample MSDS for ULSD

Sprague

PUT OUR ENERGY TO WORK FOR YOU.

Two International Drive, Suite 200, Portsmouth, NH 03801
Tel (603) 431-1000 FAX (603) 430-7290
An Axel Johnson, Inc. Company

MATERIAL SAFETY DATA SHEET
ULTRA LOW SULFUR DIESEL

Content Last Revised 11/ 02; 06/05; 10/08, 1/11.
4 Pages

SECTION 1 - MATERIAL IDENTIFICATION

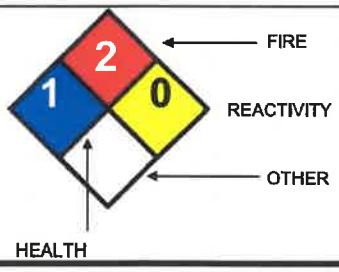
PRODUCT / CHEMICAL NAME:	ULTRA LOW SULFUR DIESEL
PRODUCT / CHEMICAL SYNONYMS:	HIGHWAY DIESEL FUEL OIL, #2 FUEL OIL (ULTRA LOW SULFUR DIESEL)
CHEMICAL FAMILY / FORMULA:	BRANCHED HYDROCRABONS / VARIABLE
MATERIAL USE OR OCCURRENCE:	-

24 HOUR EMERGENCY INFO:

Sprague: 603-431-1000
Chemtrec: 800-424-9300

HMIS / NFPA HAZARD RATING

4=EXTREME
3=SERIOUS
2=MODERATE
1=SLIGHT
0=MINIMAL



SECTION 2 – INGREDIENTS & RECOMMENDED OCCUPATIONAL EXPOSURE LIMITS

COMPOSITION	% WEIGHT AS RECEIVED	C.A.S. NO.	OSHA PEL	ACGIH TLV
ULTRA LOW SULFUR DIESEL Petroleum distillate fraction consisting of a complex mixture of parafinic, olefinic, and naphthenic hydrocarbons, plus fused polcyclic hydrocarbons (C10 and higher) as benzene solubles.	99	68476-34-6	5 mg/M3 (mineral oil mist.)	5 MG/M3
POLYCYCLIC HYDROCARBONS	<1	08-007-452	0.2 mg/M3 (benzene solubles as coal tar pitch volatiles)	0.2 mg/M3

SECTION 3 - PHYSICAL DATA

IGNITION TEMPERATURE:	340°-700°F (171°-371°C)	**% VOLATILITY BY VOLUME:**	Greater than 50%
VAPOR PRESSURE:	1 mm Hg @ 68°F (20°C)	**VAPOR DENSITY (AIR = 1):**	Greater than 5
AVERAGE SPECIFIC GRAVITY (H2O = 1):	0.86	**SOLUBILITY IN WATER:**	Non-soluble

EVAPORATION RATE (n-butyl acetate = 1): None Determined

APPEARANCE & ODOR: Clear, slightly viscous liquid.

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 125° - 180° F. (38° - 82° C) (Tag. Closed Cup)

AUTOIGNITION TEMP: >500° F (>260° C)

FLAMMABILITY LIMITS IN AIR (% BY VOL.): **LEL:** 0.6 **UEL:** 10.0

EXTINGUISHING MEDIUM: Foam, carbon dioxide, dry chemical, for larger fires use water spray, fog, or foam.

SPECIAL FIRE FIGHTING PROCEDURES: Use supplied-air breathing equipment for enclosed areas. Cool exposed containers with water spray. Continue water spray until entire container contents are cool. Withdraw immediately in the event of rising sound from venting safety device or any discoloration of storage tank due to fire (subject to the fire chief's directions).

UNUSUAL FIRE AND EXPLOSION HAZARDS: Do not mix or store with strong oxidants. Do not store or pour near sources of ignition. Do not pressurize, cut, heat, weld, or expose empty containers to sources of ignition. Vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back.

SECTION 5 - HEALTH DATA

TOXICOLOGICAL TEST DATA: **RESULTS:**

Rat; LD50 .....9,000 mg/kg (NIOSH RTECS July 1993)

	ACUTE HEALTH EFFECTS	CHRONIC HEALTH EFFECTS
INHALATION	Mist or vapor may cause respiratory tract irritation. CNS depressant. High levels may cause giddiness, headache, dizziness, nausea, vomiting, and loss of coordination, narcosis, stupor, coma, and\ unconsciousness.	. Prolonged exposure may cause dizziness, weakness, weight loss, anemia, nervousness, and pain in the limbs, peripheral numbness, and paresthesia. Renal failure possible. Degenerative changes of liver and kidneys may occur after prolonged exposure to high concentrations.
INGESTION	Irritation, giddiness, vertigo, headache, anesthetic stupor, CNS depression, coma and death.	No data available
SKIN CONTACT	Drying, cracking, and defatting dermatitis. Direct contact may cause extreme irritation with severe erythema and edema with blistering and open sores. Absorption of large amounts may result in narcosis.	Repeated or prolonged exposure may cause irritation, dermatitis, and a rash of pimples and spots.
EYE CONTACT	Irritation of the eye is possible. However, animal studies indicate that irritation is unlikely.	No data available

FIRST AID PROCEDURES

INHALATION: Remove from vapor to fresh air. If breathing has stopped, give artificial respiration. Keep affected person warm and at rest. Get medical attention immediately.

INGESTION: DO NOT INDUCE VOMITING. If more than 1 mg/kg of petroleum distillates are swallowed, remove by gastric ravage by qualified medical personnel. If vomiting occurs, keep person's head lower than hips to help prevent pulmonary aspiration. After vomiting stops, give 30-60 ml of Fleet's Phosphor-Soda diluted 1:4 in water. Get medical attention immediately.

SKIN CONTACT: Remove contaminated clothing. Wipe off excess oil with a dry cloth and then wash affected area with soap or mild detergent and large amounts of water until no evidence of chemical remains (approximately 15-20 minutes). If irritation develops, seek medical aid.

EYE CONTACT: Flush eyes immediately with copious amounts of water, occasionally lifting upper and lower lids until no evidence of chemical remains (approximately 15-20 minutes). If irritation develops, seek medical aid.

SECTION 6 - REACTIVITY DATA	
STABILITY:	Stable under normal temperatures and pressures. Flammable liquid and vapor. Vapor can cause flash fire.
HAZARDOUS POLYMERIZATION:	Hazardous polymerization has not been known to occur under normal temperatures and pressures.
CONDITIONS TO AVOID:	May be ignited by heat, sparks, or flame. Vapors may travel to a source of ignition and flash back. Vapor explosion hazard indoors, outdoors, or in sewers.
INCOMPATIBLES:	May react when exposed to oxidizing materials.
TYPICAL DECOMPOSITION PRODUCTS:	Thermal decomposition may release various hydrocarbons and hydrocarbon derivatives including carbon dioxide, water, organic acids, and aldehydes.

SECTION 7 - SPECIAL PROTECTION		
RESPIRATORY PROTECTION:		Use with adequate ventilation. For large spills or when completing work in confined spaces, use a mask with an organic vapor cartridge or positive pressure air-supplied (SCBA) unit.
VENTILATION	**LOCAL EXHAUST:**	Indoors, use lab hood. Outdoors, work upwind.
	MECHANICAL (General):	Recommended for use in enclosed or semi-enclosed work areas.
EYE PROTECTION:		Splash goggles or safety glasses with side shields.
PROTECTIVE GLOVES:		Neoprene, PVC
OTHER PROTECTIVE CLOTHING OR EQUIPMENT:		Employee must wear appropriate impervious clothing and equipment to prevent repeated or prolonged skin contact with this substance.

SECTION 8 - SPECIAL PRECAUTIONS	
PRECAUTIONS FOR SAFE HANDLING & STORAGE:	Avoid excessive inhalation or skin contact. Isolate from sources of ignition.
SPILL AND LEAK PROCEDURES:	Shut off ignition sources (no smoking, shut off flames or flares in hazard area). Isolate hazard area and restrict entry. If properly trained, proceed with the following measures: 1. For small spills, take up with sand or other absorbent material and place into containers for alter disposal; and 2. For large spills, dike far ahead of spill to prevent entrance into watercourses and/or ground water. Observe local, state and federal governmental spill and water quality regulations.
WASTE DISPOSAL METHOD:	1. Under EPA RCRA (40 CFR 261.21), if this product becomes a waste material intended for disposal and has a flash point below 140° F, it would be ignitable hazardous waste (waste code number D001). Refer to latest EPA or state regulations regarding proper disposal. 2. Under EPA RCRA (40 CFR 261.21), if this material becomes a waste material intended for disposal and has a TCLP benzene conc. Greater than 0.5 ppm, it would be a toxic waste (waste code number D018). Refer to latest EPA or state regulations regarding proper disposal.

Sprague

MATERIAL SAFETY DATA SHEET

ULTRA LOW SULFUR DIESEL

Content Last Revised 11/02; 06/05; 10/08, 1/11.

SECTION 9 - DOT HAZARDOUS MATERIAL INFORMATION		
PROPER SHIPPING NAME: DIESEL FUEL		**REQUIRED PLACARDING:** COMBUSTIBLE
HAZARD CLASS: 3 COMBUSTIBLE LIQUID	**PACKING GROUP (P.G.):** III	**N.A/U.N. NUMBER:** 1993
HAZARDOUS SUBSTANCE / RQ: NOT AVAILABLE		**SHIPPING DESCRIPTION:** ULTRA LOW SULFUR DIESEL, 3, NA 1993, PG III
NOTE: This product may be re-classed as a combustible liquid when shipped domestically, by land only. If re-classed as a combustible liquid, this product is unregulated by DOT when shipped in non-bulk quantities.		

SECTION 10 - EPA SARA TITLE III INFORMATION				
SECTION 311/312 HAZARD CLASSIFICATION:	**ACUTE:** Yes		**CHRONIC:** Yes	
	FIRE: Yes	**PRESSURE:** No	**REACTIVE:** No	

SECTION 11 - REMARKS

None.

SECTION 12 - ADDITIONAL REGULATORY DATA

REPORTABLE COMPONENTS: FEDERAL EPA	%	SARA RQ	CERCLA RQ	RCRA NO.
#2 FUEL OIL	100	-----	-----	-----
*Under EPA RCRA (40 CFR 261.21, if this material becomes a waste material intended for disposal and has a flash point below 140° F, it would be an ignitable waste (Doo1) with a SARA/CERCLA RQ of 100 pounds.				D001*
**Under EPA RCRA (40 CFR 261.21), if this material becomes a waste material intended for disposal and has a TCLP benzene concentration greater than 0.5 ppm, it would be a toxic waste (Do18) with a SARA/CERCLA of 10 pounds.				D018**

NOTE The information contained herein is based on data available at this time and is believed to be accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Since information contained herein may be applied under conditions beyond our control and with which we may be unfamiliar, no responsibility is assumed for the results of its use. The person receiving this information shall make his own determination of the suitability of the material for his particular purpose.

Attachment E: Supporting Emission Calculations

Prepared by: BHA.
Arcadis BB020161.0000

Bio-Medical Applications of West Virginia, Inc. d/b/a/ Fresenius Medical Care of Charles Town - 179 East Burr Blvd., Kearneysville, WV 25430 (Site #3836) 3/20/2017

Kohler 300REOZJ Diesel-Fired Stand-by Generator; John Deere 6090HFG86 Engine

Maximum Power Output

(kilowatts)	(brake horsepower)
346.0	463

	Pollutant					
Emission Factor in g/kW-hr	PM 0.20	PM10 0.20	SO2* 0.002	NOx 4.000	VOC 4.0000	CO 3.5000
Potential Emissions in lbs/hr	0.152	0.152	0.949	3.048	3.048	2.667
Potential Emissions in lbs/day	3.658	3.658	22.780	73.163	73.163	64.018
Potential Emission in tons/yr (based on 500 hrs)**	0.038	0.038	0.237	0.762	0.762	0.667

Methodology

Emission factors are based upon EPA Tier 3 Certification

* SO2 Emission Factor is from AP-42 Table 3.3-1 10/96. The units of the emission factor are lb/hp-hr

** Based upon the September 6, 1995 U.S. EPA Memorandum

Heat Input Rating
(MMBtu/hr)

3.041

Pollutant	Emission Factor (lbs/MMBtu)	Potential Emissions (lbs/hr)	Potential Emissions (lbs/day)	Potential Emissions (tons/year)
Benzene	9.33E-04	0.0028	0.0681	0.0007
Toluene	4.09E-04	0.0012	0.0299	0.0003
Xylenes	2.85E-04	0.0009	0.0208	0.0002
1,3 Butadiene	3.91E-05	0.0001	0.0029	0.0000
Acetaldehyde	7.67E-04	0.0023	0.0560	0.0006
Acrolein	9.25E-05	0.0003	0.0068	0.0001
Naphthalene	8.48E-05	0.0003	0.0062	0.0001
Formaldehyde	1.18E-03	0.0036	0.0861	0.0009

Methodology

Same method as above.

Emission factors are from AP42 Table 3.3-2 (October 1996)